

# Tuberculosis of Sacroiliac Joint: An Unusual Presentation

Ranju Gupta, MD; Harry Bienenstock, MD; Placido Morano, MD; and Anil Gupta, MD  
Brooklyn, New York

A 25-year-old man presented with low back pain and fever. After an initial delay, a diagnosis of tuberculosis of left sacroiliac joint was established by fine-needle aspiration of the joint. Awareness of extrapulmonary manifestations of tuberculosis and high index of suspicion will facilitate early diagnosis and treatment.

**Key words:** tuberculosis ■ sacroiliac joint

## INTRODUCTION

The diagnosis of bone and joint tuberculosis (TB) may be difficult because of the varied manner in which it may present. We discuss a patient with TB of the sacroiliac (SI) joint who presented with low back and buttock pain after lifting a heavy object.

## CASE REPORT

A 25-year-old Asian male who had been in good health was admitted to Coney Island Hospital with severe low back pain that radiated to the left buttock, thigh and leg for one week. Back pain began shortly after lifting a heavy box at work and progressed until he was unable to walk. He denied lower-extremity weakness, numbness, paresthesias, or urinary or bowel incontinence. He had no recent history of weight loss, night sweats, altered bowel habits or urethral discharge.

Two days prior to admission, he developed low-grade fever that resolved after treatment with ciprofloxacin. He immigrated to the United States from Bangladesh 15 months prior to admission and had not been in contact with anyone with known TB. Sexual activity was limited to one individual during the prior six months. Physical examination revealed a well-developed, well-nourished young man. His temperature was 98°F. The general medical examination was unremarkable. There was tenderness over the lumbar spine and left SI joint. The Gaenslen's test (with patient supine, the hip joint is maximally flexed on one side and the opposite hip joint is extended, stressing both hip joints simultaneously) was positive on the left side. Movement of the left hip elicited pain in the left mid-buttock. Lower-extremity motor and sensory examination was normal. X-ray and computerized tomography (CT) of the lumbosacral spine was normal. White blood cell count (WBC) was  $3.9 \times 10^3/\text{mm}^3$  with polymorphonuclear cells, 59.3%; lymphocytes, 27.1%; monocytes, 12.5%; and eosinophils, 0.5%.

On the second hospital day, his temperature spiked to 102°F. Repeat WBC was  $7.6 \times 10^3/\text{mm}^3$  with polymorphonuclear cells at 43% and bands at 10%. ESR

© 2005. From Internal Medicine (R. Gupta, resident), Rheumatology Division (Bienenstock, director; Morano, attending) and the Cardiology Division (A. Gupta, fellow), Coney Island Hospital, Brooklyn, NY. Send correspondence and reprint requests for *J Natl Med Assoc.* 2005;97:1174-1176 to: Ranju Gupta, Department of Medicine, Coney Island Hospital, 2601 Ocean Parkway, Brooklyn, NY 11235; phone: (917) 968-4147; fax: (718) 616-3797; e-mail: guptaranju@yahoo.com

was 8 mm/hr. Urine and blood cultures were negative. The chest x-ray was normal. A three-phase bone scan using Technitium 99m MDP revealed increased uptake in the left SI joint suggestive of an inflammatory process. A presumptive diagnosis of septic arthritis was made, and he was started on treatment with intravenous nafcillin.

He continued to be febrile and to experience pain in the left buttock. CT scan of the SI joints done on the third hospital day (Figure 1) revealed widening of the left SI joint with destruction of articular surfaces suggestive of an inflammatory process. The right SI joint was normal. Magnetic resonance imaging (MRI) of the lumbar spine was normal. MRI of the SI joint showed decreased T1 and increased T2 signal in the left iliac and lateral sacrum suggestive of sacroilitis, possibly of infectious origin.

By the fifth hospital day, left buttock pain subsided but fever persisted. A PPD placed on the sixth hospital day was negative (no induration) after 48 hours. Repeat ESR was 18 mm/hr. The CD4/CD8 was normal and HIV serology was negative.

He was afebrile by the eighth hospital day. Tenderness to palpation and pain with motion at the left SI joint persisted after three weeks of antibiotic therapy.

A repeat Gallium scan using 5mCi gallium67 citrate on the 23rd hospital day showed increased left SI joint inflammation and erosive changes which were confirmed on a repeat CT scan (Figure 2). A fine-needle aspiration (FNAC) of the left SI joint performed under CT guidance revealed acid-fast bacilli suggestive of mycobacterium tuberculosis. Repeat PPD placed on the 23rd hospital day, 18 days after the first PPD, was positive with 15 mm induration. He was started on treatment with isoniazid, rifampicin and ethambutol and discharged home.

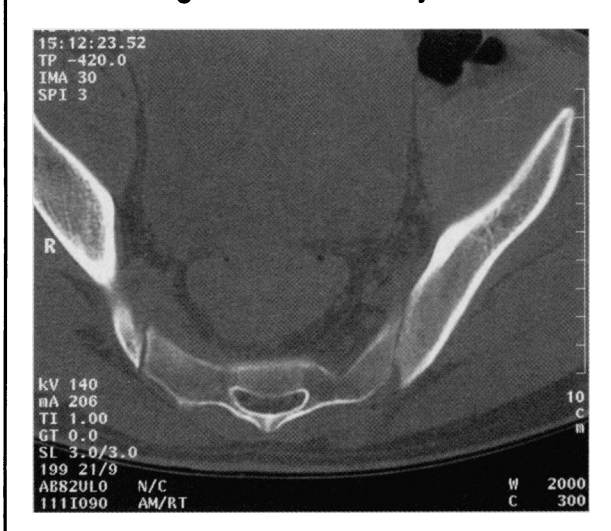
Treatment was continued for one year during which time he was asymptomatic.

## DISCUSSION

Our patient, a healthy young man, presented with acute onset of pain in the lower back radiating to the left leg after lifting a heavy object. These symptoms suggested local trauma or a herniated disc. The negative CT scan and MRI of the lumbar spine and the subsequent bone scan and the CT scan of the SI joint were consistent with an inflammatory condition of the SI joint. The sudden onset of lower back pain and fever suggested an acute bacterial infection. Sacroilitis secondary to a spondyloarthropathy was thought to be less likely in the absence of genitourinary, ophthalmic, dermatologic or gastrointestinal symptoms. The absence of leucocytosis and negative blood cultures was attributed to use of antibiotics prior to admission. The patient responded to treatment as evidenced by resolution of fever and symptomatic improvement. However, persistence of pain and tenderness at the SI joint, coupled with worsening of inflammatory changes on gallium scan and CT scan after completion of therapy, prompted us to search for an alternative diagnosis. FNAC of the SI joint revealed tuberculosis.

Bone and joint tuberculosis accounts for about 10.2% of patients with extrapulmonary tuberculosis of which 8.8% is spinal disease.<sup>1</sup> Rieder et al.<sup>2</sup> analyzed 22,764 patients of tuberculosis reported to the Centers for Disease Control (CDC) from 1963–1986 and found that 17.5% of patients had extrapulmonary involvement. Sixty-three percent of pulmonary and 71.2% of extrapulmonary cases occurred among racial and ethnic minorities and the foreign-born, whereas 37% of pulmonary and

**Figure 1. CT scan of sacroiliac joints: possible erosive changes at left sacroiliac joint**



**Figure 2. CT scan of sacroiliac joints: progressive erosive changes at left sacroiliac joint (after one month of antibiotics)**



29.8% of extrapulmonary cases occurred among non-Hispanic whites born in United States.

Constitutional symptoms are typically subtle or absent in extrapulmonary TB. In a study of 38 patients with extrapulmonary TB in a community hospital in United States, one-third of patients had no constitutional symptoms, one-third had a normal chest radiograph and 21 of 38 patients had fever.<sup>3</sup>

Involvement of SI joint by TB is not uncommon.<sup>11</sup> In one report, the SI joint was involved in about 10% of patients with skeletal tuberculosis.<sup>7</sup> In a series of 75 patients with SI joint TB at Lakeville Sanatorium between 1925–1948, Soholt<sup>8</sup> found that it mainly affected young adults between the ages of 20 and 40. TB in other skeletal areas but not noted in our patient was found in 47% of patients.<sup>8</sup> Presenting symptoms and signs of sacroiliac tuberculosis are often insidious and localized to that joint.<sup>8,9</sup> Pain is the most common initial symptom.<sup>6,7,9</sup> Because of its location deep in the pelvis, most of the classical signs of a peripheral joint inflammation—swelling, redness and warmth—are not present so that infection may easily be overlooked. Tenderness over the SI joint and one or more positive SI joint stress tests are present in most patients.<sup>6,7,9,10</sup>

X-rays of the SI joint may be normal in the early stage of the disease. Subsequently, haziness and/or loss of the joint line, irregularity of the articular surface and subchondral erosions appear. In later stages, destructive lesions become more distinct and cavitation develops. Fusion of the SI joint can occur within 3–4 years of onset of medical treatment.<sup>7,8</sup> The initial CT scan in our patient revealed slight widening of the left SI joint with destruction of articular surfaces, a finding consistent with but not specific for tuberculous sacroilitis. The diagnosis is made by isolation of mycobacteria either by AFB stain or by culture. We employed CT-scan-guided needle aspiration. Pouchot et al. have reported that closed-needle biopsy technique was more accurate and reliable.<sup>9</sup>

The tuberculin skin test is usually positive in skeletal TB.<sup>11</sup> A positive PPD is, however, not specific for current infection, and on occasion may be negative in active disease.<sup>4,6</sup> The initial PPD in our patient was negative and was positive 18 days later. This sequence has been described as the booster phenomenon<sup>5</sup> and has been explained on the basis of waning of skin test reactivity after a few years of exposure to the mycobacterium. When rechallenged within a relatively short period, the skin test reaction is increased or boosted. The other reason for initial negative PPD test could be improper application of the test.

Skeletal TB is often overlooked in developed countries because of the low incidence of disease and a low index of suspicion by the physicians who are unfamiliar with the varied manner in which it presents.<sup>11</sup> In contrast to the United States and other developed countries, there are 9 million new cases and 1.9 million deaths from TB in the developing countries.<sup>11</sup> Slowly developing, indolent involvement of the bone, joint or soft tissues may delay diagnosis from months to years.<sup>11</sup> The history of emigration from an endemic area or a past history of TB increases the likelihood of TB. The increased use of immunosuppressive and biologic agents has also resulted in resurgence of TB.<sup>4</sup> Awareness of extrapulmonary manifestations of this disease and a high index of suspicion will facilitate early diagnosis and treatment.

## REFERENCES

1. Iseman MD. Extrapulmonary tuberculosis in adults. In: Iseman MD, ed. A clinician's guide to tuberculosis. Philadelphia: Lippincott Williams & Wilkins, 2000;145-197.
2. Rieder HL, Snider DE Jr, Cauthen GM. Extrapulmonary tuberculosis in the United States. *Am Rev Respir Dis.* 1990;141:347-351.
3. Weir MR, Thornton GF. Extrapulmonary tuberculosis: experience of a community hospital and review of literature. *Am J Med.* 1985;79:467-478.
4. Gomez-Reino JJ, Carmona L, Valverde VR, et al. Treatment of rheumatoid arthritis with tumor necrosis factor inhibitors may predispose to significant increase in tuberculosis risk: a multicenter active-surveillance report. *Arthritis Rheum.* 2003;48:2122-2127.
5. Glassroth J, Robins AG, Snider DE Jr. Tuberculosis in the 1980s. *N Engl J Med.* 1980;302:1441-1450.
6. Ludmerer KM, Kissane JM, eds. Clinicopathologic conference. Severe right hip pain in a 73-year-old woman. *Am J Med.* 1986;81:117-124.
7. Kim NH, Lee HM, Yoo JD, et al. Sacroiliac joint tuberculosis: classification and treatment. *Clin Orthop.* 1999;358:215-222.
8. Soholt ST. Tuberculosis of the sacroiliac joint. *J Bone Joint Surg (Am).* 1951;33:119-130.
9. Pouchot J, Vinceneux P, Barge J, et al. Tuberculosis of sacroiliac joint: clinical features, outcome, and evaluation of closed needle biopsy in 11 consecutive cases. *Am J Med.* 1988;84:622-628.
10. Gordon G, Kabin SA. Pyogenic sacroilitis. *Am J Med.* 1980;69:50-56.
11. Harrington TJ. Mycobacterial and fungal infections. In: Harris ED, Budd RC, et al, eds: *Kelly's Textbook of Rheumatology*, 7th ed, vol. 2, pp. 1646-1660. Pennsylvania, Elsevier Saunders, 2005. ■

## We Welcome Your Comments

The *Journal of the National Medical Association* welcomes your Letters to the Editor about articles that appear in the *JNMA* or issues relevant to minority healthcare. Address correspondence to ktaylor@nmanet.org.